

Cite as “Vandenbosch, L. (in press). Antecedents of adolescents’ exposure to different types of sexually explicit Internet material: A longitudinal study. *Computers in Human Behavior*”

Antecedents of Adolescents’ Exposure to Different Types of Sexually Explicit Internet
Material: A Longitudinal Study

Laura Vandenbosch

The Amsterdam School of Communication Research, ASCoR, University of Amsterdam

Author Note

Laura Vandenbosch (PhD), The Amsterdam School of Communication Research, ASCoR, University of Amsterdam, Nieuwe Achtergracht 166, 1012 CX Amsterdam, the Netherlands. E-mail: L.P.Vandenbosch@uva.nl.

Correspondence concerning this article should be addressed to Laura Vandenbosch, The Amsterdam School of Communication Research, ASCoR, University of Amsterdam, Nieuwe Achtergracht 166, 1012 CX Amsterdam, the Netherlands. E-mail: L.P.Vandenbosch@uva.nl Telephone number : + 32 474 76 20 42

Abstract

Communication scholars have repeatedly highlighted the importance of studying the type of content that media users are exposed to. However, although adolescents use sexually explicit Internet material (SEIM) frequently, we know little about which specific types of SEIM they are exposed to. Moreover, knowledge is lacking about the antecedents of exposure to different types of SEIM and whether these antecedents differ between boys and girls. The present two-wave panel survey among 1,557 Dutch adolescents addressed these lacunae by studying exposure to affection-themed, dominance-themed and violence-themed SEIM. Younger adolescents were more often exposed to affection-themed SEIM, while older adolescents and adolescents with higher levels of academic achievement were more frequently exposed to dominance-themed SEIM. Hyper masculine boys and hyper feminine girls were more frequently exposed to violence-themed SEIM.

Keywords: sexually explicit Internet material, adolescents, media exposure, gender

Antecedents of Adolescents' Exposure to Different Types of Sexually Explicit Internet

Material: A Longitudinal Study

1. Introduction

The Internet has made sexually explicit material widely available. Sexually explicit Internet material (SEIM) can be described as “professionally produced or user generated pictures or videos (clips) on or from the Internet that are intended to arouse the viewer. These videos and pictures depict sexual activities, such as masturbation as well as oral, anal, and vaginal penetration, in an unconcealed way, often with a close-up on genitals” (Peter & Valkenburg, 2011, pp.1015-1016). While SEIM is officially targeted at an adult audience, SEIM is also used by many adolescents. Studies from the US (e.g., Wolak, Mitchell, & Finkelhor, 2007), Europe (e.g., Peter & Valkenburg, 2006, 2011) and Asia (e.g., To, Ngai, & Kan, 2012), for instance, have consistently demonstrated that on average 40 to 60 percent of adolescents visit sexually explicit websites.

Although it is thus well-documented that a substantial proportion of adolescents are exposed to SEIM, we know nearly nothing about which specific types of SEIM and thus which sexual scripts adolescents encounter when watching SEIM. Recent reviews have highlighted this lack of knowledge as one of the central lacunae in research on adolescents' use of SEIM (Owen, Behun, Manning, & Reid, 2012; Wright, 2014). Moreover, there is some discussion in the field about the extent to which specific types of SEIM may affect adolescents. For example, it has been suggested that adolescents' exposure to more violent SEIM may contribute to sexual aggression (e.g., Bonino, Ciairano, Rabaglietti, & Cattelino, 2006; Ybarra, Mitchell, Hamburger, Diener-West, & Leaf, 2011). Similarly, the relatively frequent occurrence of male dominance in SEIM has been related to gender-stereotypical sex roles (e.g., Peter & Valkenburg, 2007, 2009). Others, in contrast, have argued that the Internet has increased the accessibility of all types of SEIM (Attwood, 2007), notably

material that presents sexual activity in a more intimate, affectionate context (Ogas & Gaddam, 2012). As there has been limited systematic effort in investigating which types of SEIM adolescent users are exposed to, the first goal of the current study was to explore how often adolescent users access violence-themed, dominance-themed, and affection-themed SEIM.

Moreover, knowledge is lacking about the antecedents of exposure to different types of SEIM. Although an emerging body of research has dealt with the antecedents of exposure to SEIM in general (e.g., Beyens, Vandenbosch, & Eggermont, 2014; Peter & Valkenburg, 2006, 2008b, 2009, 2011), no study has yet addressed the antecedents that shape exposure to different types of SEIM in adolescents. However, research on the use of sexual media content has shown demographic variables, sociocultural factors, and personality characteristics play an important role in which types of sexual media content adolescents are exposed to (e.g., Peter & Valkenburg, 2006, 2011; Beyens et al., 2014; Steele, 1999). Hence, the second goal of the current study was to examine the extent to which exposure to violence-themed, dominance-themed, and affection-themed SEIM depends on demographic variables (e.g., Peter & Valkenburg, 2006), sociocultural factors (e.g., Stack, Wasserman, & Kern, 2004) and personality factors (e.g., Beyens et al., 2014).

Finally, research points to gender differences in the antecedents of adolescents' SEIM exposure (e.g., Peter & Valkenburg, 2006). More generally, the gender socialization literature has shown that boys and girls are socialized towards different sexual identities (Lottes & Kuriloff, 1994), which may affect how their users' profile relates to exposure to sexual media content (Steele & Brown, 1995; Steele, 1999). Therefore, the third goal of this study was to explore whether gender moderates the influence of various antecedents on exposure to different types of SEIM.

1.1. Types of Sexually Explicit Internet Material

The literature on pornography has typically focused on three major themes in pornography: Affection, dominance and violence (e.g., Arakawa, Flanders, & Hatfield, 2012; Crooks & Baur, 2002; Klaassen & Peter, 2015; Ogas & Gaddam, 2012). Affection-themed SEIM can be described as SEIM that depicts sexual activities and the related scenarios within an intimate context in which the sexual partners show affection toward each other. In this type of SEIM, the sexual activity is considered a physical expression of partners' feelings for each other (Laan, Everaerd, Van Bellen, & Hanewald, 1994; Ogas & Gaddam, 2012). In the literature, affection-themed SEIM has been characterized by its non-degrading and non-violent nature and its focus on affectionate sexual acts (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010; Check, & Guloien, 1989; Crooks & Baur, 2002; Donnerstein & Berkowitz, 1981). Studies have found that affectionate sexual acts, such as kissing during sexual activities (Gorman, Monk-Turner, & Fish, 2010; Vannier, Currie, & O'Sullivan, 2014), occurred in respectively 40-50% of sexually explicit material (SEM). Scholars have emphasized that affection-themed SEM can especially be found on pornographic websites targeting a female audience (Ogas & Gaddam, 2012). Arguably, this type of SEIM is appealing for female Internet users as they enjoy watching the material more strongly when it has an affectionate storyline (Laan et al., 1994; Ogas & Gaddam, 2012).

Dominance-themed SEIM refers to SEIM that features a dominant sexual character, either male or female. More specifically, Cowan and Dunn (1994) have argued that this type of material portrays a sexual partner who imposes his/her sexual wishes to one (or more) sexual partner(s), often with disregard of the feelings of the other sexual partner(s). Research has consistently shown that dominance is a popular theme in SEIM as up to 50% of the analyzed SEIM contained depictions of power (Barron, & Kimmel, 2000; Klaassen & Peter, 2015). For instance, a study of Gorman et al. (2010) showed that dominance was the main theme in 33% of the analysed sexually explicit Internet videos, while it occurred as a

secondary theme in 11% of the material. Earlier literature typically has identified men as dominant characters in SEM (e.g., Cowan & Dunn, 1994). However, recent content analyses of SEIM have found that women are also portrayed in dominant sexual roles, albeit still significantly less often than men (Arakawa et al., 2012; Barron, & Kimmel, 2000; Klaassen & Peter, 2015; Vannier et al., 2014).

Internet material showing sexual activities that occur in a context of physical aggression against one or more sexual partners can be described as violence-themed SEIM (Barron & Kimmel, 2000; McKee, 2005; Palys, 1986; Yang & Linz, 1990). Violence portrayed in SEIM may include depictions of physical pain and the harm (e.g., crying) of the person who is forced into the sexual interaction (McKee, 2005). Two studies on SEIM have shown that four out of ten scenes depicted sexual violence, such as slapping/spanking and confine/bondage (Barron, & Kimmel, 2000; Klaassen & Peter, 2015). Spanking, in particular, occurs relatively often: In one study, popular sexually explicit Internet videos were found to feature spanking in 27% of the videos (Vannier et al., 2014). Similarly, another recent study demonstrated that women were being spanked in 27% of the scenes of sexually explicit Internet videos (Klaassen & Peter, 2015. See, however, also their discussion of whether spanking constitutes sexual violence and whether the definition of spanking as sexual violence may lead to an overestimation of sexual violence in pornography). In addition, research on both offline and online SEM has reported that the violent acts are often performed by men and involve female victims (e.g., Bridges et al., 2010; Klaassen & Peter, 2015; Yang & Linz, 1990).

Although previous quantitative research has not yet examined the types of SEIM that adolescents consume, the results from the aforementioned content analyses suggest that there is a chance that adolescents distinguish between affection-themed SEIM, dominance-themed SEIM and violence-themed SEIM. Qualitative research also suggests that adolescents may be

exposed to all three types of SEIM (Haggstrom-Nordin, Sandberg, Hanson, & Tyden, 2006; Löfgren-Mårtenson & Månsson, 2010; Månsson & Löfgren-Mårtenson, 2007). However, as previous research does not allow us to specify which types of SEIM adolescents are predominantly exposed to, the following research question was posed:

RQ 1: To what extent do the themes of affection, dominance and violence occur in the SEIM that adolescents watch?

1.2. Antecedents of Exposure to Sexually Explicit Internet Material

Research has generally suggested that Internet users are not equally exposed to affection-themed, dominance-themed, and violence-themed SEIM (e.g., Cameron et al., 2005; Månsson & Löfgren-Mårtenson, 2007; Ogas & Gaddam, 2012). Previous research on SEIM has so far supported that demographic, socio-cultural and personality-related media antecedents predict adolescents' general exposure to SEIM (e.g., Peter & Valkenburg, 2006, 2011; Wolak et al., 2007; Vandenbosch & Eggermont, 2013). These antecedents may also be important when studying adolescents' exposure to specific types of SEIM.

In the literature on media exposure, it has been argued that demographic, sociocultural and personality-related antecedents may influence the probability of being exposed to particular media content (e.g., LaRose & Eastin, 2004; Steele & Brown, 1995). These antecedents are expected to shape the level of congruence one experiences between one's own identity and the messages covered in the media content (Steele & Brown, 1995). Media content that is congruent with one's identity is more likely to be used as this material matches the user's motives to consume media.

1.2.1. Demographic antecedents. A first important demographic antecedent for exposure to affection-themed, dominance-themed and violence-themed SEIM is gender. Generally, boys have been shown to be rather attracted to power and dominance in human relationships, while girls are more interested in emotions and affection (Crooks & Baur,

2002; Lottes & Kurilloff, 1994). More specifically, qualitative research on young adults and adolescents' experiences with SEIM has suggested that exposure to SEIM at least partly reflects preferences for power, dominance, and affection (Cameron et al., 2005; Månsson & Löfgren-Mårtenson, 2007). Girls rather preferred affection-themed SEIM, while (some) boys were more willing to consume dominance-themed and violence-themed SEIM (Cameron et al., 2005; Månsson & Löfgren-Mårtenson, 2007).

Another important marker for exposure to sexual media content is age (Steele, 1999). To be used frequently by adolescents, media content needs to be in line with adolescents' developmental level. Sexual imagery that is considered "too extreme" may evoke disgust, notably in younger viewers (Brown, White, & Nikopoulou, 1993), which suggests that younger viewers may be more exposed to "softer" types of SEIM (i.e., affection-themed SEIM). In addition, older adolescents are likely to have more experience with consuming SEIM than younger adolescents because SEIM use increases with age (Wolak et al., 2007). Studies on pornography preferences (e.g., Zillman & Bryant, 1986) have suggested that increased pornography consumption may trigger viewers to consume more dominance- and violence-themed pornography. This observation has been explained by the process of desensitization (Zillmann & Bryant, 1986). Frequent exposure to mainstream SEIM may gradually desensitize individuals' responses to such media content and lower the evoked level of sexual arousal (Quayle, & Taylor, 2003; Zillmann & Bryant, 1986). As a result of this excitatory habituation, individuals may become attracted to more extreme genres of SEIM, such as dominance- and violence-themed SEIM (Seigfried-Spellar, & Rogers, 2013; Quayle, & Taylor, 2003; Zillmann & Bryant, 1986). Older adolescents thus seem to be more likely to be exposed to dominance- and violence-themed pornography than younger adolescents.

Based on these considerations, the following was hypothesized:

Hypothesis 1. Male adolescents and older adolescents will be exposed to affection-themed SEIM less frequently and more frequently to dominance-themed and violence-themed SEIM than will female adolescents and younger adolescents.

1.2.2. Sociocultural antecedents. The literature on adolescents' media use (e.g., Roe, 1995; Steele, 1999) suggests that both academic achievement and religiosity may influence whether an adolescent watches affection-themed, dominance-themed and violence-themed SEIM. With regard to academic achievement, Roe (1995) has argued that low academic achievers have a preference for media content that is culturally less accepted because they experience to differ from dominant cultural norms due to their academic performance. Qualitative research on pornography suggests that dominance-themed and violence-themed SEIM are considered as less acceptable by adolescents, while affection-themed SEIM is often seen as more appropriate (Cameron et al., 2005; Månsson & Löfgren-Mårtenson, 2007).

The literature has also suggested lower rates of dominance-themed and violence-themed SEIM use for religious individuals, presumably because the portrayed sexual activities in these types of SEIM are less acceptable for this group (Sherkat & Ellison, 1997; Stack et al., 2004). Religious individuals often support the view that sexual interactions should only take place in committed (marital) relationships. As a result, they disapprove of purely recreational sexual activities (Sherkat & Ellison, 1997), which are a defining feature of SEIM. Consequently, religious individuals' overall consumption of SEIM is likely to be low (Linz & Malamuth, 1993; Sherkat & Ellison, 1997). However, when religious individuals do consume SEIM, it can be expected that they will be especially attracted towards sexual material portraying individuals in a committed, affectionate relationship rather than dominance-themed and violence-themed SEIM.

Both high academic achievers and religious adolescents may thus be more likely to be exposed to affection-themed SEIM because it is more congruent with social norms.

Therefore, the following was hypothesized:

Hypothesis 2. Adolescents with lower levels of academic achievement and religiosity will be exposed to affection-themed SEIM less frequently and dominance-themed and violence-themed SEIM more frequently than will adolescents with higher levels of academic achievement and religiosity.

1.2.3. Personality-related antecedents. Earlier literature suggests that sensation seeking and a hyper gender orientation are likely to influence the level of congruence between a user's identity and affection-themed, dominance-themed and violence-themed SEIM. High sensation seekers are attracted to activities that elicit "varied, novel, and complex sensations" (Zuckerman, 1994, p.27). Such sensations are more likely to be found in dominance-themed and violence-themed media content (Zuckerman & Litle, 1986). In addition, affection-themed SEIM has been characterized by its focus on one climax in a romantic setting, lower pace and slower overall development of the story (Laan et al., 1994; Ogas & Gaddam, 2012). Other types of pornography, such as dominance-themed and violence-themed SEIM, feature a more instant portrayal of various sexual activities (Laan et al., 1994). The latter characteristic may be especially appealing to high sensation seekers.

Hyper gender orientation generally refers to an individual's tendency to accept highly stereotypical gender roles in terms of (sexual) relations to the opposite sex (Hamburger, Hogben, McGowan, & Dawson, 1996). Hyper masculine males strongly endorse stereotypical masculine sexual beliefs (Mosher & Sirkin, 1984) and are likely to identify with the themes of violence and dominance in sexual relations (Bem, 1981; Mosher & Anderson, 1986). Similarly, females with a hyper feminine orientation may be more willing to consume

dominance-themed and violence-themed SEIM, as a recent study has suggested (Van Oosten, Peter, & Boot, 2014).

The literature on sensation seeking and hyper gender identity thus suggests that sensation seeking and hyper gender orientation increase the likelihood that adolescents are exposed to dominance-themed and violence-themed SEIM. Therefore, the following was hypothesized:

Hypothesis 3. Adolescents with higher levels of sensation seeking and hyper gender orientation will be less frequently exposed to affection-themed SEIM and more frequently to dominance-themed and violence-themed SEIM than will adolescents with lower levels of sensation seeking and hyper gender orientation.

1.3. Gender Differences

The gender socialization literature (e.g., Lottes & Kuriloff, 1994; Tolman, Striepe, & Harmon, 2003) has established strong empirical support that boys and girls are, at least partly, socialized into a different sexual roles. As a result, it is important to study whether gender differences occur in the hypothesized associations between demographic/ sociocultural/ personality-related characteristics and exposure to different types of SEIM. It is generally acknowledged that boys and girls are by and large still socialized into a complementary sexuality that fits the dominant heterosexual norm (e.g., Tolman et al., 2003). For instance, sexual activities and sexual initiative are typically supported among male adolescents, while girls are usually encouraged to protect their sexual reputation and to be rather reticent in sexual activities (cf. sexual double standard) (Lottes & Kuriloff, 1994; Tolman et al., 2003). It thus seems plausible to assume that adolescents' gender may moderate the associations between demographic, sociocultural, and personality-related antecedents and exposure to different types of SEIM. Therefore, the following research question was posed:

RQ 2: Are there differences for boys and girls in the relationships between demographic, sociocultural and personality-related antecedents and exposure to affection-themed, dominance-themed and violence-themed SEIM?

2. Methods

2.1. Participants and Procedure

This study draws on the first two waves of a three-wave panel study with an interval of six months that was conducted among 13- to 17-year-old adolescents between May 2013 and May 2014 by Veldkamp, a Dutch survey institute. Prior research on media exposure among adolescents has recommended using a two-wave panel design with a six months interval as this interval is particularly suitable for research in adolescents because of the relatively rapid sequence of developmental changes that occur during adolescence (Mul, 2004; Vandebosch & Eggermont, 2013). At baseline, a sample of 2,137 adolescents agreed to participate in the survey (response rate = 78%). This sample was randomly drawn from an existing panel of adolescents administered by Veldkamp. The original panel, from which the sample was drawn, was also selected randomly and is representative of the Dutch population.

The mean age of this study's sample was 14.97 years ($SD = 1.41$), 50.1% were boys, and 93.4% had a heterosexual sexual orientation. The distribution of the educational level and income level of the adolescents' parents (distributed in 4 levels) showed that 55.1% of the participants were part of the highest and second highest level of SES. The lowest and second lowest SES level included respectively 21.1% and 23.8% of the sample. This is similar to other research in the Netherlands showing that approximately 50% of the population has a high and medium SES, while the other part has a lower SES (Hulshof, Brussaard, Kruizinga, Telman, & Löwik, 2003).

In the second wave, 1,765 adolescents of those who had participated in the first wave participated again (response rate = 82.6%). A χ^2 -test revealed that no difference occurred

according to gender between participants who completed the survey at both waves and dropouts, $p > .05$. Using Pillai's Trace, a MANOVA analysis further revealed that there were no significant differences between adolescents participating in one wave and adolescents participating in both waves regarding age, academic achievement, religiosity, sensation seeking, hyper gender orientation, and exposure to different types of SEIM, $V = .005$, $F(8, 1548) = 1.02$, $p = .417$, $\eta^2 = .005$. Overall, attrition did thus not cause a systematic bias in the data. Because "casewise" deletion for missing data (i.e., excluding dropouts) has been criticized (Allison, 2003), all available data were included in the analyses and maximum likelihood method was used to handle missing data.

2.2. Measures

2.2.1. Exposure to different types of sexually explicit Internet material. A 10-item scale appropriate for use in an adolescent sample was constructed. Any use of pornographic, slang, and foul language or words that could upset adolescents were avoided. Adolescents who reported to have used SEIM during the last six months either deliberately or accidentally were asked to rate the extent to which the ten items were applicable to the Internet sex that they had encountered (through images or movies). Participants used a 7-point Likert scale including the options *totally not applicable* (= 1), *not applicable* (= 2), *hardly applicable* (= 3), *a little bit applicable*, *a little bit not applicable* (= 4), *somewhat applicable* (= 5), *applicable* (= 6), and *totally applicable* (= 7).

The items were "Romance," "Love," "Dominant men," "Dominant women," "First yes, than no," "Pain is fun," "Forced," "Cry," "Wanted violence" and "Unwanted violence." These items were based on a careful review of prior content analytical research on the most popular themes of pornography: Affection, dominance and violence (e.g., Klaassen & Peter, 2015; McKee, 2005; Ogas & Gaddam, 2012). Affection-themed SEIM can be described as SEIM that depicts sexual activities and the related scenarios within an intimate context in

which the sexual partners show affection and love toward each other (Laan et al., 1994; Ogas & Gaddam, 2012). In line with this description of affection-themed SEIM, the items of “Romance” and “Love” were included. Dominance-themed SEIM can be described as SEIM that features a dominant sexual character, either male or female (Cowan & Dunn, 1994). In line with this description of dominance-themed SEIM, the items “Dominant men” and “Dominant women” were included. Violence-themed SEIM can be described as SEIM that depicts sexual activities in a context of physical aggression against one or more sexual partners (Barron & Kimmel, 2000; McKee, 2005; Palys, 1986; Yang & Linz, 1990), and may include depictions of physical pain and the harm (e.g., crying) of the person who is forced into the sexual interaction (McKee, 2005). In line with this description of violence-themed SEIM, the items “First yes, than no,” “Pain is fun,” “Forced,” “Cry,” “Wanted violence” and “Unwanted violence” were included.

A principle components analysis indicated that the items “Romance” and “Love” loaded on a first factor, called exposure to affection-themed SEIM (eigenvalue = 1.86; explained variance = 18.60%; $r = .89$). A second factor including the items “Dominant men” and “Dominant women” was labelled exposure to dominance-themed SEIM (eigenvalue = 1.03; explained variance = 10.34%; $r = .63$). A last factor called exposure to violence-themed SEIM (eigenvalue = 4.88; explained variance = 48.75%; $\alpha = .91$) contained the items “Pain is fun,” “Forced,” “Cry,” “Wanted violence” and “Unwanted violence.” The item “First yes, than no” cross-loaded on the violence- and dominance-themed factor and was omitted.

A confirmatory factor analysis showed that the validity of the proposed measurement model was reasonable (Browne & Cudeck, 1993), $\chi^2(23) = 340.82$, $p < .001$, CFI = .96, RMSEA = .09 [90% CI .09 - .10], AGFI = .91, $\chi^2/df = 14.82$, and indicated that the model fit increased after omitting the item “First yes, than no” (the model fit was less optimal when item 5 was included in the model and loaded on dominance-themed SEIM, $\chi^2(31) = 501.06$, p

$< .001$, CFI = .95, RMSEA = .10 [90% CI .09 - .11], AGFI = .90, $\chi^2/df = 16.16$, AIC = 549.06, or violence-themed SEIM, $\chi^2(31) = 605.34$, $p < .001$, CFI = .94, RMSEA = .11 [90% CI .10 - .12], AGFI = .87, $\chi^2/df = 19.53$, AIC = 653.68). The variables exposure to affection-themed SEIM, exposure to dominance-themed SEIM and exposure to violence-themed SEIM were calculated by averaging the items belonging to each factor. Higher scores on each variable, indicate higher exposure to that particular type of SEIM.

In addition, a pilot study was organized among a panel of six researchers of SEIM to ensure that the included themes related to genres that are used to categorize different genres of SEIM. Fifty genres were adopted from the coding scheme used in the study by Klaassen and Peter (2015). The panel rated on a 10-point Likert scale ranging from 1 (= *totally not applicable*) to 10 (= *totally applicable*) the extent to which each genre covered the themes of affection, dominance and violence. The results showed that affection-themed SEIM was especially associated with descriptions of genres, such as romance ($M = 8.00$, $SD = 2.50$), romantic relationship (e.g., boyfriend and girlfriend) ($M = 7.67$, $SD = 3.27$), married couple ($M = 6.83$, $SD = 3.19$), heterosexual couple ($M = 5.50$, $SD = 3.45$), and female friendly ($M = 5.17$, $SD = 4.17$). Both dominance-themed SEIM and violence-themed SEIM were associated with the genre descriptions non-consensual sex or rape (dominance $M = 9.33$, $SD = 1.21$; violence $M = 9.17$, $SD = 1.60$), forced seduction/rape fantasy/ “no” becomes “yes” (dominance $M = 9.17$, $SD = 1.17$; violence $M = 8.00$, $SD = 2.45$), and bondage/BDSM (dominance $M = 8.40$, $SD = 2.07$; violence $M = 8.20$, $SD = 1.30$). Dominance-themed SEIM was also associated with dominant men ($M = 9.17$, $SD = 1.60$) and sadomasochism ($M = 8.67$, $SD = 2.42$). Violence-themed SEIM was further associated with crying ($M = 7.83$, $SD = 3.54$). In conclusion, the pilot study showed that the themes of affection, dominance and violence can be distinguished in genres that are accessible on popular pornography websites.

2.2.2. Demographic information. Participants indicated whether they were a boy (1) or a girl (2) and reported their age.

2.2.3. Hyper gender identity. In line with prior research (e.g., Kreiger & Dumka, 2006), we selected the Hyper Femininity Scale of Murnen and Byrne (1991) and the Hyper Masculinity Index of Mosher and Sirkin (1984). Both scales were adopted to ensure their applicability to an adolescent sample. Moreover, each scale was shortened because of space constraints. A pilot study was organized among 103 college students (77 women) to ensure six items with the highest corrected item-total were selected from each scale.

More precisely, to address hyper femininity in girls, six items of the Hyper Femininity Scale of Murnen and Byrne (1991) were selected. The selected items were adapted to be appropriate for adolescents. For instance, the item “It’s okay if men are a little forceful during sex” was changed into “It’s okay if a boy acts a little dominant towards me” (i.e., male dominance). The other included items were “Boys need to hunt somewhat for girls,” “You can get boys to do what you want by acting sexy,” “I feel flattered when boys whistle at me,” “It’s fun to wrap boys around your finger,” and “It’s fun to play ‘hard-to-get’.” Participants used a 7-point Likert scale ranging from 1 (= *totally disagree*) to 7 (= *totally agree*). Principal component analysis ensured that all items loaded on one factor (eigenvalue = 3.36; explained variance = 55.97%; $\alpha = .84$). All items were averaged into a new variable ($M = 3.54$; $SD = 1.27$); higher scores in girls indicate higher levels of hyper femininity.

To address hyper masculinity in boys, six items of the Hyper Masculinity Index (HMI; Mosher & Sirkin, 1984) were selected. Again, the items were adapted to be appropriate for adolescents. Items were: “A risk is never too high if the reward is big enough,” “I fight to win,” “People sometimes tell me I take stupid risks,” “Those who can, fight. Those who can’t fight, run away,” “If you get challenged for a fight, you have no other choice than to fight,” and “If you insult me, you better be prepared.” Participants used a 7-

point Likert scale ranging from 1 (= *totally disagree*) to 7 (= *totally agree*). Principal component analysis ensured that all items loaded on one factor (eigenvalue = 3.27; explained variance = 54.42%; $\alpha = .83$). All items were averaged into a new variable ($M = 3.44$; $SD = 1.31$); higher scores indicate higher levels of hyper masculinity in boys.

2.2.4. Academic achievement. Two items from the General School Scale of the Academic Self-Description Questionnaire (ASDQ; Marsh, 1990) were used: “I get good grades in school” and “I am good at most subjects in school” ($r = .75$). Participants used a 7-point Likert scale ranging from 1 (= *not at all applicable to me*) to 7 (= *very applicable to me*). All items were averaged in a new variable ($M = 5.54$; $SD = 1.01$). Higher scores indicate higher levels of academic achievement.

2.2.5. Religiosity. Two items were used: “I am religious” and “My religion is important to me” ($r = .91$). Participants used a 7-point Likert scale ranging from 1 (= *not at all applicable to me*) to 7 (= *very applicable to me*). All items were averaged in a new variable ($M = 2.71$; $SD = 1.94$); higher scores, indicate higher levels of religiosity.

2.2.6. Sensation seeking. Five items from the Brief Sensation Seeking Scale (Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002) were used. The item on “bungee-jumping” was omitted as prior research showed a low factor loading of the item (Peter & Valkenburg, 2008). Participants used a 7-point Likert scale ranging from 1 (= *not at all applicable to me*) to 7 (= *very applicable to me*) to rate items such as “I would love to have new and exciting experiences, even if they are illegal.” Principal component analysis ensured that all items loaded on one factor (eigenvalue = 3.52; explained variance = 70.36%; $\alpha = .90$). All items were averaged into a new variable ($M = 3.69$; $SD = 1.43$); higher scores indicate higher levels of sensation seeking.

3. Results

3.1. Frequency of Adolescents' Exposure to Different Types of SEIM

The first objective of this research was to study to what extent the themes of affection, dominance and violence occur in the SEIM that adolescents are exposed to (RQ 1). Of the 2,137 adolescents at baseline, 1,557 adolescents (72.86%) indicated to have been exposed to SEIM during the last 6 months and thus rated the extent to which the Internet sex that they had watched covered the themes of affection, dominance and violence. At baseline, the average scores suggested that the themes of affection ($M = 2.66$; $SD = 1.67$), dominance ($M = 2.89$; $SD = 1.51$) and violence ($M = 2.28$; $SD = 1.35$) did not occur very often in the SEIM that adolescents had been exposed to. Frequency analyses demonstrated that a total of 43.3%, 53.7% and 38.9% of the respondents (i.e., scores > 2) encountered affection, dominance, and violence respectively in the SEIM that they had been watching. Respectively 18%, 17.9% and 10%, of the adolescents at baseline indicated that the themes of affection, dominance and violence were (at least a bit) applicable to the SEIM that they had been watching (= score of 4 or higher).

A repeated measures ANOVA analysis revealed significant differences between the frequency of exposure to the three types of SEIM at baseline, $F(1.61, 2497.52) = 95.01$, $p < .001$, $\eta^2 = .06$. Pairwise comparison tests demonstrated that adolescents were exposed to dominance-themed SEIM more frequently than to both affection-themed and violence-themed SEIM. Adolescents were exposed to violence-themed SEIM least frequently, which also significantly differed from exposure to affection-themed SEIM.

Using Pillai's Trace, a MANOVA analysis further revealed that there were significant differences at baseline between boys and girls regarding their exposure to affection-themed, dominance-themed and violence-themed SEIM, $V = .02$, $F(3, 1553) = 8.36$, $p < .001$, $\eta^2 = .02$. Boys ($M = 2.94$; $SD = 1.47$) and girls ($M = 2.82$; $SD = 1.55$) were equally exposed to dominance-themed SEIM, $F(1, 1555) = 2.24$, $p = .14$. However, boys ($M = 2.75$; $SD = 1.61$) had more often been exposed to affection-themed SEIM than girls ($M = 2.55$; $SD = 1.73$),

$F(1,1555) = 5.41, p < .05$. Girls ($M = 2.37; SD = 1.46$) also indicated to have been more often exposed to violence-themed SEIM than boys ($M = 2.20; SD = 1.24$), $F(1,1555) = 6.59, p < .05$.

3.2. Antecedents of Adolescents' Exposure to Different Types of SEIM

The second objective of this research was to study whether demographic antecedents (Hypothesis 1), sociocultural antecedents (Hypothesis 2) and personality-related antecedents (Hypothesis 3) affected exposure to affection-themed, dominance-themed and violence-themed sexually explicit material on the Internet. Table 1 shows the zero-order correlations for the whole sample, and separately for boys and girls.

Structural equation modeling (AMOS) using the maximum likelihood method was applied to test the relationships predicted in Hypotheses 1, 2 and 3. Cases with partially missing data were included in the sample; Heywood cases that are likely to occur when using scales with only two items were resolved by including the manifest variables of religion, academic achievement and exposure to affection-themed SEIM. The baseline values of age, academic achievement, religiosity, hyper gender orientation, and sensation seeking were entered in the model as antecedents, and all variables at Time 1 were allowed to covary. The values on use of affection-themed, dominance-themed and violence-themed SEIM were entered from Time 1 and Time 2, as the model controlled for prior values of each type of SEIM. For instance, use of affection-themed SEIM at Time 1 was modelled to predict the use of affection-themed SEIM at Time 2.

The model had an adequate fit, $\chi^2 = 1405.93, df = 369, p < .001, RMSEA = .05$ [90% CI .04 - .05], AGFI = .91, CFI = .95, $\chi^2/df = 3.81$. Hypothesis 1 predicted that male adolescents and older adolescents would be exposed to affection-themed SEIM less frequently and dominance-themed and violence-themed SEIM more frequently than would female adolescents and younger adolescents. As for demographic antecedents, the model

showed that age at Time 1 negatively predicted exposure to affection-themed SEIM at Time 2, $\beta = -.06$, $B = -0.07$, $SE = 0.03$, $p < .05$. Age at Time 1 also positively predicted exposure to dominance-themed SEIM at Time 2, $\beta = .08$, $B = 0.09$, $SE = 0.03$, $p < .01$. No other significant pathways were found that supported Hypothesis 1.

Hypothesis 2 posited that adolescents with lower levels of academic achievement and religiosity would be exposed to affection-themed SEIM less frequently and dominance-themed and violence-themed SEIM more frequently than would adolescents with higher levels of academic achievement and religiosity. As for sociocultural antecedents, academic achievement positively predicted exposure to dominance-themed SEIM, $\beta = .06$, $B = 0.10$, $SE = 0.05$, $p < .05$. In contrast to what Hypothesis 2 predicted, no significant pathways were found for religiosity.

Hypothesis 3 stated that adolescents with higher levels of sensation seeking and hyper gender orientation would be exposed to affection-themed SEIM less frequently and dominance-themed and violence-themed SEIM more frequently than would adolescents with lower levels of sensation seeking and hyper gender orientation. As for personality-related antecedents, hyper gender orientation was found to positively predict exposure to violence-themed SEIM, $\beta = .12$, $B = 0.12$, $SE = 0.05$, $p < .05$. No other significant pathways were found that supported Hypothesis 3.

Finally, prior use of affection-themed, dominance-themed and violence-themed SEIM predicted respectively exposure to affection-themed ($\beta = .38$, $B = 0.38$, $SE = 0.03$, $p < .001$), dominance-themed ($\beta = .26$, $B = 0.27$, $SE = 0.04$, $p < .001$) and violence-themed ($\beta = .31$, $B = 0.30$, $SE = 0.03$, $p < .001$) SEIM at Time 2.

3.3. Gender Differences

The third objective of this research was to study differences between boys and girls in the relationships between demographic, sociocultural and personality-related antecedents and

exposure to affection-themed, dominance-themed and violence-themed SEIM (RQ 2).

Separate models were estimated for boys and girls. This unconstrained model demonstrated an adequate fit, $\chi^2 = 1919.04$, $df = 704$, $p < .001$, RMSEA = .04 [90% CI .04 - .04], AGFI = .86, CFI = .93, $\chi^2/df = 2.73$. To explore significant gender differences, model comparison tests were conducted; Akaike's Information Criterion (= AIK or AIC) was used to compare alternative linkages between the same concepts denoting superior linkages with a lower value (Byrne, 2010).

For each group of antecedents, the model comparison test indicated that the model fit of the unconstrained model (AIK = 2371.04) was not significantly different from the model constraining the relationships between demographic/ sociocultural/ personality-related antecedents and exposure to different types of SEIM to be equal for boys and girls (demographic antecedents AIK = 2365.04; sociocultural antecedents AIK = 2359.04; personality-related antecedents AIK = 2359.04). Overall, no support was found for gender as a moderator of relationships between antecedents and exposure to different types of SEIM (RQ 2). The results are summarized in Figure 1.

4. Discussion

Although a substantial proportion of adolescents has been shown to consume SEIM (e.g., Peter & Valkenburg, 2006, 2011), we know little about which types of SEIM adolescents are exposed to. This study was the first study to differentiate between adolescents' exposure to affection-themed, dominance-themed and violence-themed SEIM. Two out of ten adolescents indicated to have clearly encountered affection-themed and dominance-themed SEIM, while one out ten adolescents indicated to have clearly been exposed to violence-themed SEIM. Moreover, in line with media exposure literature (e.g., Steele & Brown, 1995), the results indicated that particular demographic variables, sociocultural factors and personality characteristics affect exposure to different types of

SEIM. The findings also point to gender similarities in how antecedents shape exposure to SEIM.

4.1. Exposure to Different Types of SEIM and Its Antecedents

This study highlights that exposure to SEIM in adolescents is not homogeneous: Adolescents differed in the frequency to which they were exposed to affection-themed, dominance-themed and violence-themed SEIM. Consistent with the frequent occurrence of dominance in SEIM (Barron & Kimmel, 2000; Gorman et al., 2010; Klaassen & Peter, 2015), adolescents indicated to have been exposed to this type of material the most often. Affection-themed SEIM appeared also as a rather popular genre of SEIM among two out of ten adolescents. Although content analyses have suggested that violence occurs in 30 to 40% of SEIM (Barron & Kimmel, 2000; Klaassen & Peter, 2015; Vannier et al., 2014), adolescents were the least often exposed to this type of SEIM.

In line with the predictions, there were differences in the extent to which adolescents were exposed to these different types of SEIM. The current study demonstrates that exposure to different types of SEIM depends on particular demographic, sociocultural, and personality-related antecedents.

4.1.1. Demographic antecedents. In contrast to research on antecedents of SEIM use in general (e.g., Peter & Valkenburg, 2006, 2011), gender did not influence exposure to different types of SEIM over time. This suggests that other antecedents are more relevant and that gender may operate in another way when it comes to exposure to specific types of SEIM. For SEIM exposure in general, gender has been shown to predict powerfully whether an adolescent consumes the material: Boys are much more likely to be exposed to SEIM in general than are girls (e.g., Peter & Valkenburg, 2006, 2011). However, once adolescents are exposed to SEIM, concepts other than gender seem better predictors of what specific type of SEIM adolescents are exposed to.

Age did emerge as an important demographic antecedent. In line with the expectations, older adolescents were more likely to have been exposed to dominance-themed SEIM, while younger adolescents were rather exposed to affection-themed SEIM. Age did not predict exposure to violence-themed SEIM, potentially because this genre was generally less often used. Overall, the pattern found seems to reflect developmental processes in adolescence. For younger adolescents, affection-themed SEIM may be more in line with their emerging interest in sexual relations, while older adolescents may have incorporated more diverse aspects of relationships into their notion of sexual relations (Brown et al., 1993; Steele, 1999). Older adolescents, who are probably more familiar with SEIM, may also have become somewhat desensitized (see Zillman & Bryant, 1986) to affectionate-themed SEIM and, as a consequence, have turned to other, more dominance-themed SEIM. No empirical support exists for this explanation, but future research may find an interesting task in investigating the trajectories of young people's use of specific types of SEIM throughout adolescence.

4.1.2. Sociocultural antecedents. In contrast to the predictions, higher levels of academic achievement positively predicted exposure to dominance-themed SEIM. This study is the first in the literature to describe this pattern, which is hard to integrate with existing theoretical frameworks. Before engaging in speculation about the implications of these results, it may be useful to see whether the findings can be replicated by other researchers with a different sample and in other cultural contexts.

Religiosity was unrelated to exposure of any type of SEIM. Studies have reported on the decreasing importance of religiosity in adolescents (e.g., Smith, 1992) which may potentially explain the lack of explanatory value in the current study. Another explanation may be that religiosity only plays a role in the decision to access SEIM rather than in which type of SEIM is chosen. Scholars have noted that religious organizations especially

disapprove of the explicit portrayal of sex (Linz & Malamuth, 1993; Sherkat & Ellison, 1997), which may influence adolescents in avoiding SEIM in general.

4.1.3. Personality-related antecedents. Sensation seeking turned out to be a non-significant antecedent when exploring associations with exposure to different types of SEIM. This result is in line with the study of Bogaert (2001) that showed that sensation seeking did not predict male college students' selection of watching violence-themed and affection-themed sexually explicit movies. However, sensation seeking has previously been shown to be an important predictor for the frequency to which an adolescent consumes SEIM in general (e.g., Peter & Valkenburg, 2006, 2011). The current study together with the study of Bogaert (2001) suggest that sensation seeking may be a predictor of whether and how frequently an adolescent is exposed to SEIM, but seems less relevant for the type of SEIM an adolescent consumes.

Adolescents high in hyper gender orientation were more often exposed to violence-themed SEIM, but did not differ from adolescents low in hyper gender orientation in their exposure to affection-themed or dominance-themed SEIM. In the broader field of research on pornography, these results merge with research on the effects of violent pornography, which has shown that both hyper masculine men and hyper feminine women respond differently to violent or male-targeted pornography than men and women low on that trait (e.g., Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Van Oosten et al., 2014). Given the consistency of the current results with earlier research, it is surprising that previous research on the antecedents of general SEIM use has neglected this concept (e.g., Beyens et al., 2014; Peter & Valkenburg, 2006, 2011; Wolak et al., 2007). The findings tentatively suggest that a stronger focus on hyper gender orientation may help us understand better what drives adolescents' exposure to specific types of SEIM and, perhaps most important, to identify potentially problematic usage tendencies in young people.

4.2. Directions for Future Research

Overall, the results provide some support for the notion that exposure to SEIM is driven by demographic, socio-cultural, and personality-related antecedents. At the same time, several predicted relationships were not supported by the study data. In this view, the media attendance theory of LaRose and Eastin (2004) points to the importance of perceived Internet self-efficacy in relationships between antecedents and online activities, especially among novice users of particular Internet material. Self-efficacy refers in this context to “the belief in one's capabilities to organize and execute courses of Internet actions required to produce given attainments” (Eastin & LaRose, 2000, p.x). Potentially, self-efficacy beliefs moderate how antecedents relate to adolescents' exposure to different types of SEIM and may even explain some of the reported null findings in this study. For instance, this study did not support that more religious individuals were more frequently exposed to affection-themed SEIM. This relationship may only occur when adolescents (who have in general relatively limited experience with accessing SEIM) believe that they are capable of effectively finding such material online.

Moreover, self-efficacy beliefs are expected to increase when people have prior experience with a particular Internet activity (LaRose & Eastin, 2004). In this view, a longitudinal study among European adolescents has documented that online sexual activities are especially predicted by prior involvement in these activities (Ševčíková, Vazsonyi, Širůček, & Konečný, 2013). Similarly, the data of this study also showed that prior exposure to a particular type of SEIM was a strong predictor of future exposure to that type SEIM. This relationship may potentially be explained by the increase in self-efficacy beliefs about accessing a particular type of SEIM.

Findings were also obtained that do not directly fit prior literature. Notably, this study found that boys were exposed to affection-themed SEIM more often, while girls indicated to

have been more often exposed to violence-themed SEIM. One possibility to address this unexpected finding is to pay more attention to the motives for using specific types of SEIM, especially sexual curiosity. Arguably, girls use SEIM more out of curiosity (Koukounas & McCabe, 1997; Wallmyr & Welin, 2006) and may therefore particularly search for less mainstream content (Rothman, Kaczmarsky, Burke, Jansen, & Baughman, 2014). In this context, scholars have more generally highlighted that when girls (do) use sexual media content, curiosity is an important reason (Goodson, McCormick, & Evans, 2001; Hawk, Vanwesenbeeck, De Graaf, & Bakker, 2006; Koukounas & McCabe, 1997). The literature also suggests that sexually explicit media use is more often discouraged in girls (Træen, Sorheim, Nilsen, & Stigum 2006), which may trigger the “forbidden fruit effect” and the related curiosity in girls. It seems, thus, that when motives for using specific types of SEIM are considered, several findings of this study may be explainable. Therefore, future researchers are urged to pay more attention to adolescents’ motives for using specific types of SEIM.

However, several of the unexpected findings may also be explained by the validity of the newly developed scale. This study was a first effort to examine the different types of SEIM that adolescents use. Future research is needed to further explore the validity of the new scale. More precisely, the current study relied on content analyses to identify manifest themes in SEIM (e.g., Klaassen & Peter, 2015). For instance, the study of Vannier et al. (2014) found that 27% of the videos contained depictions of spanking which has been interpreted as violence-themed SEIM. However, Klaassen and Peter (2015) also showed that the person that has been spanked mostly does not show any reaction towards the act of spanking. Klaassen and Peter consequently ask future researchers to reconsider whether consensual spanking constitutes sexual violence. Potentially, adolescent viewers may not interpret spanking without a reaction of the partner as violence-themed SEIM. This may

explain why only 10% of the sample indicated that this theme was clearly present in the SEIM that they watched. Another 28.9% indicated violence was covered in the SEIM that they watched, but less clearly.

Also, French kissing, extended foreplay and caressing have been interpreted as features of affection-themed SEIM (e.g., Laan et al., 1994). Kissing has been shown to be present in 40% of online videos (Vannier et al., 2014). Similarly, one in four adolescents in this study indicated that affection had (at least) occurred in the SEIM that they had been consuming. Within this group of adolescents, 42% also found it a more clearly applicable theme (i.e., a total of 18% of the whole sample). Potentially, strong (verbal or physical) expressions of love and romance need to be present in the consumed SEIM in order to be classified as affection-themed SEIM among adolescents. Such depictions are rare. Research has found that only 2% of the online videos portray characters that are cuddling (Vannier et al., 2014).

Taken together, future (qualitative) research is needed to examine how the particular features that content analyses have used to define genres of SEIM are interpreted by adolescents. Based on such research, additional clarification of terms, such as love and dominant men, can be achieved. These clarifications can be used to modify the scale accordingly and to obtain more theoretically consistent results.

Furthermore, one significant problem that the current study encountered is that adolescents may have difficulties in recognizing themes in sexually explicit material. As suggested in the literature, research on college students' autobiographic experiences with sexual media content (Cantor, Mares, & Hyde, 2003) highlights difficulties among young media users in paying attention to themes in SEM. For instance, when participants were asked to describe memorable pornographic content that they had watched during adolescence, they referred to the explicit portrayal of heterosexual sexual activities most frequently

(Cantor et al., 2003). A deeper understanding of the story and notification of related contextual elements did not surface among young media users (Cantor et al., 2003). This literature and the findings of the current study suggest that adolescents' developmental phase may impede them to accurately rate the extent to which they have consumed violence-themed, dominance-themed and affection-themed SEIM. Adolescents may especially focus on the portrayed sexual behavior instead of, for instance, the type of characters involved in the sexual interaction (e.g., whether the character is dominant or violent). As a result, they may have difficulties to rate the extent to which violence, dominance, and affection occurred in the SEIM that they had consumed, which would explain the reported low frequency rates for the explicit portrayal of these themes in the sample of the current study. To further examine this explanation, qualitative research among adolescents may investigate their abilities to remember contextual elements regarding violence, dominance and affection in sexually explicit media content.

4.3. Conclusion

In conclusion, the current study has demonstrated that differences exist in the types of SEIM that adolescents are exposed to. Moreover, age, academic achievement and gender identity were identified as important antecedents of adolescents' use of different types of SEIM. This study has been a first step to describe adolescents' exposure to specific types of SEIM. A new scale on adolescents' use of different types of SEIM was introduced and future research is needed to validate this measurement instrument. Because several unexpected results emerged, a next important step for future research is to unravel in depth how adolescents' interact with and respond to different types of SEIM.

5. References

- Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology, 112*, 545-557. doi:0.1037/0021-843X.112.4.545
- Arakawa, D. R., Flanders, C., & Hatfield, E. (2012). Are variations in gender equality evident in pornography? A cross cultural study. *International Journal of Intercultural Relations, 36*, 279-285. doi:10.1016/j.ijintrel.2011.08.006.
- Barron, M., & Kimmel, M. (2000). Sexual violence in three pornographic media: Toward a sociological explanation. *Journal of Sex Research, 37*, 161-169. doi:10.1080/00224490009552033.
- Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88*, 354-364. doi:10.1037/0033-295X.88.4.354
- Beyens, I., Vandenbosch, L., & Eggermont, S. (2014). Early adolescent boys' exposure to Internet pornography: Relationships to pubertal timing, sensation seeking, and academic performance. *Journal of Early Adolescence, 1-24*. Advance online publication. doi:10.1177/0272431614548069
- Bogaert, A. F. (2001). Personality, individual differences, and preferences for the sexual media. *Archives of Sexual Behavior, 30*, 29-53. doi:10.1023/A:1026416723291
- Bonino, S., Ciairano, S., Rabaglietti, E., & Cattelino, E. (2006). Use of pornography and self-reported engagement in sexual violence among adolescents. *European Journal of Developmental Psychology, 3*, 265-288. doi: 10.1080/17405620600562359
- Bridges, A. J., Wosnitzer, R., Scharrer, E., Sun, C., & Liberman, R. (2010). Aggression and sexual behavior in best-selling pornography videos: A content analysis update. *Violence Against Women, 16*, 1065-1085. doi:10.1177/1077801210382866.
- Browne, M. W. & Cudeck, R. (1993). *Alternative ways of assessing model fit*. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury

Park, CA: Sage

Brown, J. D., White, A. B., & Nikopoulou, L. (1993). Disinterest, intrigue, resistance: Early adolescent girls' use of sexual media content. In B. S. Greenberg, J. D. Brown, N. L. Buerkel-Rothfuss (Eds.), *Media, sex, and the adolescent* (pp. 263–276). Cresskill, NJ: Hampton Press.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.

Cameron, K. A., Salazar, L. F., Bernhardt, J. M., Burgess-Whitman, N., Wingood, G. M., & DiClemente, R. J. (2005). Adolescents' experience with sex on the web: Results from online focus groups. *Journal of Adolescence*, 28, 535-540.
doi:10.1016/j.adolescence.2004.10.006

Cantor, J., Mares, M. L., & Hyde, J. S. (2003). Autobiographical memories of exposure to sexual media content. *Media Psychology*, 5, 1-31. doi: 10.1207/S1532785XMEP0501_1

Check, J., & Guloien, T. (1989). Reported proclivity for coercive sex following repeated exposure to sexually violent pornography, nonviolent dehumanizing pornography, and erotica. In D. Zillmann & J. Bryant (Eds.). *Pornography: Research advances, policy considerations* (pp. 159–184). Hillsdale, NJ: Erlbaum.

Cowan, G., & Dunn, K. F. (1994). What themes in pornography lead to perceptions of the degradation of women? *Journal of Sex Research*, 31, 11-21.
doi:10.1080/00224499409551726

Crooks, R., & Baur, K. (2002). *Our sexuality*. Belmont, CA: Wadsworth.

Donnerstein, E., & Berkowitz, L. (1981). Victim reactions in aggressive erotic films as a factor in violence against women. *Journal of Personality and Social Psychology*, 41, 710-724. doi:10.1037/0022-3514.41.4.710

Eastin, M. S., & LaRose, R. (2000). Internet self-efficacy and the psychology of the digital

- divide. *Journal of Computer-Mediated Communication*, 6(1).doi: 0.1111/j.1083-6101.2000.tb00110.x
- Goodson, P., McCormick, D., & Evans, A. (2001). Searching for sexually explicit materials on the Internet: An exploratory study of college students' behavior and attitudes. *Archives of Sexual Behavior*, 30, 101–118. doi:0004-0002/01/0400-0101\$19.50/0
- Gorman, S., Monk-Turner, E., & Fish, J. N. (2010). Free adult Internet web sites: How prevalent are degrading acts? *Gender Issues*, 27, 131-145. doi:10.1007/s12147-010-9095-7.
- Häggström-Nordin, E., Sandberg, J., Hanson, U., & Tydén, T. (2006). 'It's everywhere!' Young Swedish people's thoughts and reflections about pornography. *Scandinavian Journal of Caring Sciences*, 20, 386-393. doi:10.1111/j.1471-6712.2006.00417.x
- Hamburger, M. E., Hogben, M., McGowan, S., & Dawson, L. J. (1996). Assessing hypergender ideologies: Development and initial validation of a gender-neutral measure of adherence to extreme gender-role beliefs. *Journal of Research in Personality*, 30, 157-178. doi:10.1006/jrpe.1996.0011
- Hawk, S. T., Vanwesenbeeck, I., De Graaf, H., & Bakker, F. (2006). Adolescents' contact with sexuality in mainstream media: A selection-based perspective. *Journal of Sex Research*, 43, 352-363. doi:10.1080/00224490609552334
- Hoyle, R. H., Stephenson, M. T., Palmgreen, P., Lorch, E. P., & Donohew, R. L. (2002). Reliability and validity of a brief measure of sensation seeking. *Personality and Individual Differences*, 32, 401-414. doi:10.1016/S0191-8869(01)00032-0
- Hulshof, K. F., Brussaard, J. H., Kruizinga, A. G., Telman, J., & Lowik, M. R. (2003). Socio-economic status, dietary intake and 10 year trends: The Dutch National Food Consumption Survey. *European Journal of Clinical Nutrition*, 57, 128-137.

doi:10.1038/sj.ejcn.1601503

- Klaassen, M. J. E., & Peter, J. (2015). Gender (in)equality in Internet pornography: A content analysis of popular pornographic Internet videos. *Journal of Sex Research*. Advance online publication. doi: 10.1080/00224499.2014.976781
- Koukounas, E., & McCabe, M. (1997). Sexual and emotional variables influencing sexual response to erotica. *Behaviour Research and Therapy*, 35, 221-230. doi:10.1016/S0005-7967(96)00097-6
- Kreiger, T. C., & Dumka, L. E. (2006). The relationships between hypergender, gender, and psychological adjustment. *Sex Roles*, 54, 777-785. doi: 10.1007/s11199-006-9044-9
- Laan, E., Everaerd, W., Van Bellen, G., & Hanewald, G. (1994). Women's sexual and emotional responses to male-and female-produced erotica. *Archives of Sexual Behavior*, 23, 153-169. doi:10.1007/BF01542096
- LaRose, R., & Eastin, M. S. (2004). A social cognitive theory of Internet uses and gratifications: Toward a new model of media attendance. *Journal of Broadcasting & Electronic Media*, 48, 358-377. doi: 10.1207/s15506878jobem4803_2
- Linz, D., & Malamuth, N. (1993). *Pornography*. Newbury Park, CA: Sage
- Löfgren-Mårtenson, L., & Månsson, S. A. (2010). Lust, love, and life: A qualitative study of Swedish adolescents' perceptions and experiences with pornography. *Journal of Sex Research*, 47, 568-579. doi:10.1080/00224490903151374
- Lottes, I. L., & Kuriloff, P. J. (1994). Sexual socialization differences by gender, Greek membership, ethnicity, and religious background. *Psychology of Women Quarterly*, 18, 203-219. doi:10.1111/j.1471-6402.1994.tb00451.x
- Malamuth, N. M., Linz, D., Heavey, C. L., Barnes, G., & Acker, M. (1995). Using the confluence model of sexual aggression to predict men's conflict with women: A 10-year follow-up study. *Journal of Personality and Social Psychology*, 69, 353-369.

doi:10.1037/0022-3514.69.2.353

Månsson, S. A., & Löfgren-Mårtenson, L. (2007). Let's talk about porn! On youth, gender

and pornography in Sweden. In S. V. Knudsen, L. Löfgren-Mårtenson, & S.-A.

Månsson (Eds.), *Generation P? Youth, gender and pornography* (pp. 241-258).

Kopenhagen, Danmarks: Pedagogiska Universitetsforlag.

Marsh, H. W. (1990). Causal ordering of academic self-concept and academic achievement:

A multiwave, longitudinal panel analysis. *Journal of Educational Psychology*, 82, 646-

656. doi:10.1037/0022-0663.82.4.646

McKee, A. (2005). The objectification of women in mainstream porn videos in Australia.

Journal of Sex Research, 42, 277-290. doi:10.1080/00224490509552283.

Mosher, D. L., & Anderson, R. D. (1986). Macho personality, sexual aggression, and

reactions to guided imagery of realistic rape. *Journal of Research in Personality*, 20,

77-94. doi:10.1016/0092-6566(86)90111-X

Mul, D. (2004). Puberteitsontwikkeling van Nederlandse kinderen [Pubertal development of

Dutch children]. *Tijdschrift voor Seksuologie*, 28, 82-86.

Murnen, S. K., & Byrne, D. (1991). Hyperfemininity: Measurement and initial validation of

the construct. *The Journal of Sex Research*, 28, 479-489.

doi:10.1080/00224499109551620

Mosher, D. L., & Sirkin, M. (1984). Measuring a macho personality constellation. *Journal of*

Research in Personality, 18, 150-163. doi:10.1016/0092-6566(84)90026-6

Ogas, O., & Gaddam, S. (2011). *A billion wicked thoughts: What the Internet tells us about*

sexual relationships. New York: Plume.

Owens, E. W., Behun, R. J., Manning, J. C., & Reid, R. C. (2012). The impact of Internet

pornography on adolescents: A review of the research. *Sexual Addiction &*

Compulsivity, 19, 99-122. doi:10.1080/10720162.2012.660431

Palys, T. S. (1986). Testing the common wisdom: The social content of video pornography.

Canadian Psychology, 27, 22–35. doi:10.1037/h0079859

Peter, J. & Valkenburg, P. M. (2006). Adolescents' exposure to sexually explicit material on

the internet. *Communication Research*, 33, 178-204. doi:10.1177/0093650205285369

Peter, J., & Valkenburg, P. M., (2007). Adolescents' exposure to a sexualized media

environment and notions of women as sex objects. *Sex Roles*, 56, 381-395.

doi:10.1007/s11199-006-9176-y

Peter, J., & Valkenburg, P. M. (2008a). Adolescents' exposure to sexually explicit internet

material, sexual uncertainty, and attitudes toward uncommitted sexual exploration: Is

there a link? *Communication Research*, 35, 569-601. doi:10.1177/0093650208321754

Peter, J., & Valkenburg, P. M. (2008b). Adolescents' exposure to sexually explicit internet

material and sexual preoccupation: A three-wave panel study. *Media Psychology*, 11,

207–234. doi: 10.1080/15213260801994238

Peter, J., & Valkenburg, P. M. (2009). Adolescents' exposure to sexually explicit Internet

material and notions of women as sex objects: Assessing causality and underlying

processes. *Journal of Communication*, 59, 407-433. doi:10.1111/j.1460-

2466.2009.01422.x

Peter, J., & Valkenburg, P. M. (2011). The use of sexually explicit internet material and its

antecedents: A longitudinal comparison of adolescents and adults. *Archives of Sexual*

Behavior, 40, 1015-1025. doi:10.1007/s10508-010-9644-x

Quayle, E., & Taylor, M. (2003). Model of problematic Internet use in people with a sexual

interest in children. *CyberPsychology & Behavior*, 6, 93-106.

doi:10.1089/109493103321168009.

Roe, K. (1995). Adolescents' use of socially disvalued media: towards a theory of media

delinquency. *Journal of Youth and Adolescence*, 24, 617-631. doi:10.1007/BF01537059

- Rothman, E. F., Kaczmarzsky, C., Burke, N., Jansen, E., & Baughman, A. (2014). "Without porn... I wouldn't know half the things I know now": A qualitative study of pornography use among a sample of urban, low-income, Black and Hispanic youth. Advance online publication. *Journal of Sex Research*. doi:10.1080/00224499.2014.960908
- Seigfried-Spellar, K. C., & Rogers, M. K. (2013). Does deviant pornography use follow a Guttman-like progression? *Computers in Human Behavior*, 29, 1997-2003. doi:10.1016/j.chb.2013.04.018
- Sherkat, D. E., & Ellison, C. G. (1997). The cognitive structure of a moral crusade: Conservative Protestantism and opposition to pornography. *Social Forces*, 75, 957-980. doi:10.1093/sf/75.3.957
- Smith, T. W. (1992). Poll trends: religious beliefs and behaviors and the televangelist scandals of 1987-1988. *Public Opinion Quarterly*, 56, 360-380.
- Stack, S., Wasserman, I., & Kern, R. (2004). Adult social bonds and use of Internet pornography. *Social Science Quarterly*, 85, 75-88. doi:10.1111/j.0038-4941.2004.08501006.x
- Steele, J. R. (1999). Teenage sexuality and media practice: Factoring in the influences of family, friends, and school. *Journal of Sex Research*, 36, 331-341. doi:10.1080/00224499909552005
- Steele, J. R., & Brown, J. D. (1995). Adolescent room culture: Studying media in the context of everyday life. *Journal of Youth and Adolescence*, 24, 551-576. doi:10.1007/BF01537056
- Ševčíková, A., Vazsonyi, A. T., Širůček, J., & Konečný, S. (2013). Predictors of online and offline sexual activities and behaviors among adolescents. *Cyberpsychology, Behavior, and Social Networking*, 16, 618-622. doi:10.1089/cyber.2012.0552

- To, S. M., Ngai, S. S. Y., & Iu Kan, S. M. (2012). Direct and mediating effects of accessing sexually explicit online materials on Hong Kong adolescents' attitude, knowledge, and behavior relating to sex. *Children and Youth Services Review*, 34, 2156-2163.
doi:10.1016/j.chldyouth.2012.07.019
- Tolman, D. L., Striepe, M. I., & Harmon, T. (2003). Gender matters: Constructing a model of adolescent sexual health. *Journal of Sex Research*, 40, 4-12.
doi:10.1080/00224490309552162
- Træen, B., Sorheim, T., Nilsen, T. S. & Stigum, H. (2006). Use of pornography in traditional media and on the internet in Norway. *Journal of Sex Research*, 43, 245-254.
doi:10.1080/00224490609552323
- Vandenbosch, L., & Eggermont, S. (2013). Sexually explicit websites and sexual initiation: Reciprocal relationships and the moderating role of pubertal status. *Journal of Research on Adolescence*, 23, 621-634. doi:10.1111/jora.12008
- Van Oosten, J. M. F., Peter, J., & Boot, I. (2014). Women's critical responses to sexually explicit material: The role of hyperfemininity and processing style. *Journal of Sex Research*, 52, 306-316. doi:10.1080/00224499.2013.858305
- Vannier, S. A., Currie, A. B., & O'Sullivan, L. F. (2014). Schoolgirls and soccer moms: A content analysis of free "teen" and "MILF" pornography. *Journal of Sex Research*, 51, 253-264. doi:10.1080/00224499.2013.829795
- Wolak, J., Mitchell, K., & Finkelhor, D. (2007). Wanted and unwanted exposure to online pornography in a national sample of youth internet users. *Pediatrics*, 119, 247-257.
doi:1031542/peds.2007-1197
- Wright, P. J. (2014) Pornography and the sexual socialization of children: Current knowledge and a theoretical future, *Journal of Children and Media*, 8, 305-312.
doi:10.1080/17482798.2014.923606

- Yang, N., & Linz, D. (1990). Movie ratings and the content of adult videos: The sex–violence ratio. *Journal of Communication*, 40(2), 28-42. doi:10.1111/j.1460-2466.1990.tb02260.x
- Ybarra, M. L., Mitchell, K. J., Hamburger, M., Diener-West, M., & Leaf, P. J. (2011). X-rated material and perpetration of sexually aggressive behavior among children and adolescents: is there a link?. *Aggressive Behavior*, 37, 1-18. doi:10.1002/ab.20367
- Zillmann, D., & Bryant, J. (1986). Shifting preferences in pornography consumption. *Communication Research*, 13, 560-578. doi:10.1177/009365086013004003
- Zuckerman, M., & Litle, P. (1986). Personality and curiosity about morbid and sexual events. *Personality and Individual Differences*, 7, 49-56. doi:10.1016/0191-8869(86)90107-8
- Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. Cambridge, NY: Cambridge University Press.

Table 1

Zero-order correlations between key variables

	Gender T1	Age T1	Academic achievement T1	Religiosity T1	Hyper gender identity T1	Sensation seeking T1	A SEIM T1	D SEIM T1	V SEIM T1	A SEIM T2	D SEIM T2	V SEIM T2
A SEIM T1	S = -.06*	S = -.08** B = -.03 G = -.12**	S = -.03 B = .02 G = -.07	S = .02 B = .01 G = .04	S = .09** B = .11** G = .06	S = .14** B = .16** G = .11**	S = 1 B = 1 G = 1	S = .27** B = .32** G = .22**	S = .12** B = .18** G = .07	S = .39** B = .36** G = .44**	S = .03 B = .05 G = .01	S = .07* B = .12** G = .00
D SEIM T1	S = -.04	S = .05 B = .08* G = .02	S = -.06* B = -.03 G = -.09*	S = .03 B = .05 G = .02	S = .21** B = .22** G = .21**	S = .22** B = .24** G = .19**		S = 1 B = 1 G = 1	S = .62** B = .61** G = .63**	S = .04 B = .02 G = .06	S = .29** B = .30** G = .26**	S = .25** B = .29** G = .20**
V SEIM T1	S = .06*	S = .01 B = -.01 G = .01	S = -.02 B = -.03 G = -.02	S = .01 B = .02 G = .00	S = .17** B = .21** G = .12**	S = .14** B = .18** G = .11**			S = 1 B = 1 G = 1	S = .00 B = .02 G = -.01	S = .24** B = .22** G = .27**	S = .37** B = .37** G = .36**
A SEIM T2	S = -.03	S = -.08** B = -.06 G = -.11*	S = .01 B = .10* G = -.09*	S = .03 B = .01 G = .06	S = .09** B = .07 G = .12**	S = .12** B = .07 G = .16**				S = 1 B = 1 G = 1	S = .14** B = .16** G = .13**	S = .13** B = .16** G = .10*
D SEIM T2	S = -.04	S = .11** B = .10** G = .12**	S = .02 B = .04 G = .00	S = -.02 B = .04 G = -.06	S = .16** B = .14** G = .21**	S = .18** B = .18** G = .17**					S = 1 B = 1 G = 1	S = .54** B = .53** G = .57**
V SEIM T2	S = .04	S = .01 B = .00 G = .01	S = -.02 B = -.01 G = -.03	S = .02 B = .07 G = -.02	S = .16** B = .18** G = .13**	S = .12** B = .15** G = .10*						S = 1 B = 1 G = 1

Note. * Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed); A = Affection-themed, D = Dominance-themed, V = Violence-themed, S = full sample, B = boys, G = girls.

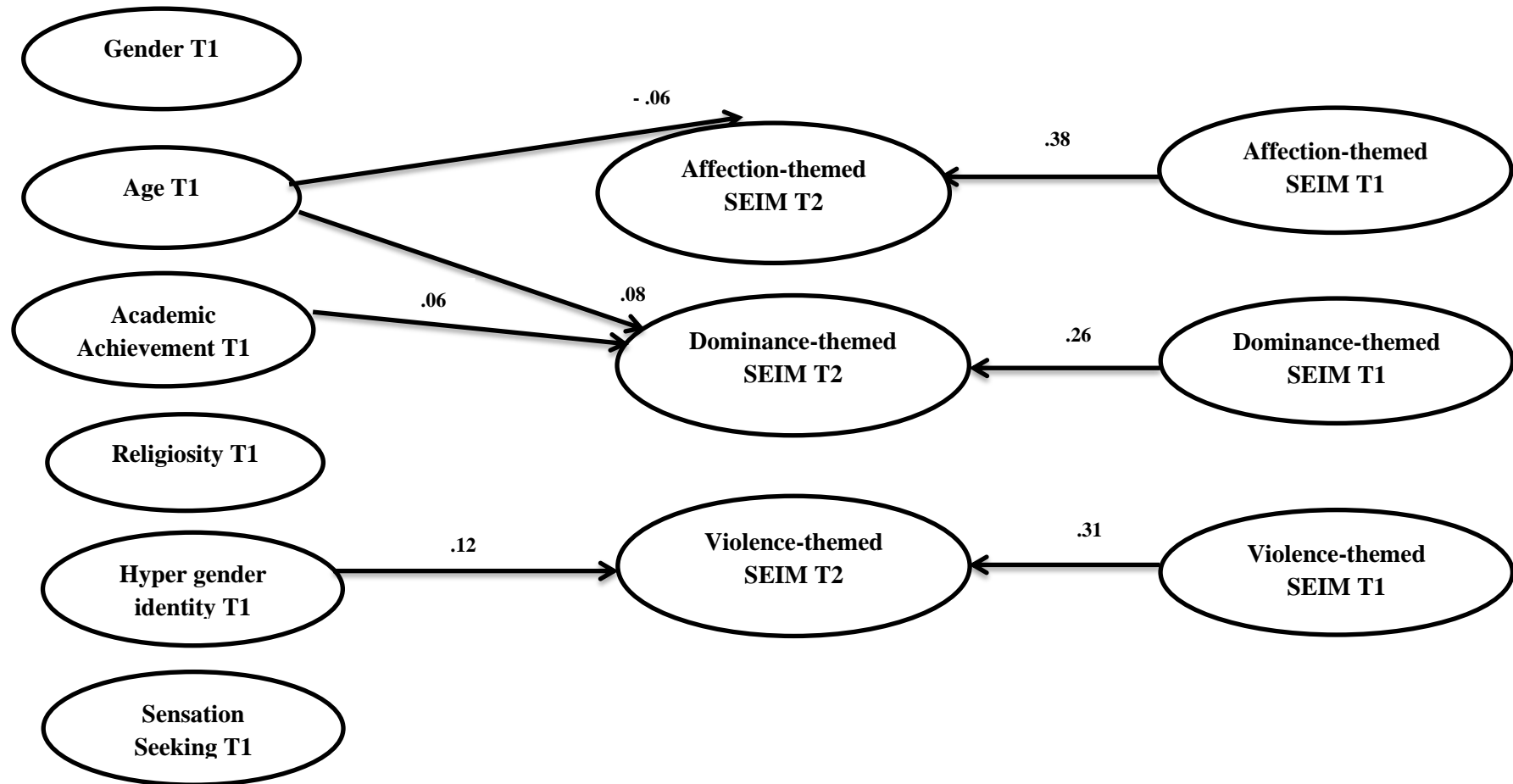


Figure 1. Model for relationships between antecedents and types of SEIM exposure. Note: All full paths were similar across gender and significant at $p < .05$. For clarity, error terms, covariance and measurements are not shown.